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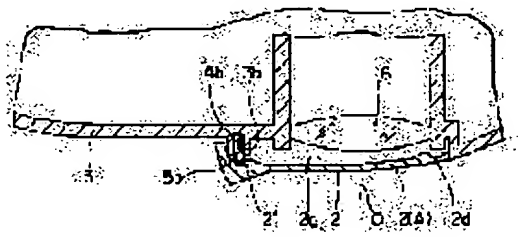
(54) CAMERA WITH BARRIER

(57)Abstract:

PURPOSE: To provide a camera with slide barrier capable of smooth moving at the time of sliding.

CONSTITUTION: The camera provided with the barrier 2 capable of being moved to a fully closing position for covering the front surface of a photographic lens 6 and a fully opening position for opening the front surface of the photographic lens has a click ball 5b having energizing force in a direction where the ball 5b comes into elastically contact with the barrier 2, barrier recessed parts 2f and 3d provided on the barrier 2 so as to be engaged with the ball 5b in the fully closing and opening positions and a recessed face 2g provided on the barrier 2 between both barrier recessed parts 2f and 2d to eliminate the energizing force in the moving range between the fully closing and opening positions.



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* NOTICES *

1. This document has been translated by computer.So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] The camera equipped with the barrier which can move the front face of a taking lens characterized by providing the following to a wrap closed position and the open position which opens the front face of this taking lens. A stop means by which the energization force of the sense of ****(ing) to the above-mentioned barrier was able to be given. The de-energizing section prepared in the above-mentioned barrier between both the above-mentioned engagement sections so that it might engage with the above-mentioned stop means in the above-mentioned closed position and an open position and the above-mentioned energization force might be de-energized in the moving range between the engagement section prepared in the above-mentioned barrier, and the above-mentioned closed position and an open position.
[Claim 2] The above-mentioned stop means is a camera with the barrier according to claim 1 characterized by consisting of a spherical member and an elastic member which turns this spherical member to the above-mentioned barrier, and presses it.
[Claim 3] The camera equipped with the barrier which can move in the direction which intersects the optical axis of a taking lens at a wrap closed position and the open position which is not wearing the transverse plane of this taking lens at the front of a taking lens characterized by providing the following. The click means for positioning the above-mentioned barrier in the above-mentioned closed position and an open position. The pressure mitigation means established all over the moving range between the above-mentioned closed position and an open position so that the pressure by this click means might be made to mitigate.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to camera equipment equipped with the monitor.
[0002]
[Description of the Prior Art] In a camera, there was a thing it enabled it to protect at the time of carrying from the former by covering the image pck-up lens section and the finder section with covering of one. Moreover, with the electronic still camera which has spread in recent years, there is much what equips the monitor which used the liquid crystal display panel.
[0003]
[Problem(s) to be Solved by the Invention] By the way, in an electronic still camera, like the conventional camera, when covering the image pck-up lens section and the monitor section with covering of one, since the monitor by the latus liquid crystal display panel of area must be covered comparatively, the amount which opens covering at the time of use becomes large. However, when the amount which opens covering at the time of use becomes large, there is a problem which covering becomes light and becomes what it is hard to deal with in case weight balance is bad and photography to a thing with a heavy main part side.
[0004] In camera equipment equipped with a monitor, having covering which covers and protects a monitor at the time of carrying, the technical problem of this invention has the good weight balance in the state where covering was opened at the time of use, and is [the handling at the time of being photography is stabilized, and] made to be hard to carry out a hand deflection.
[0005]
[Means for Solving the Problem] while having the covering member which invention according to claim 1 is camera equipment which equipped the main part of a camera with the monitor section for the image pck-up lens section, a photography picture, and reproduction image display, is attached possible [a slide] to the aforementioned main part of a camera that the above technical problem should solve, and has a wrap portion for the aforementioned monitor section at least -- this covering -- the aforementioned main part side of a member of a camera is characterized by the composition which prepared the battery holder which contains a cell in the edge of a
[0006] Here, the image pck-up lens section may consist only of optical system, although what doubled the focus with CCD is mentioned. The monitor section may be based on other display meanses, although for example, a liquid crystal display panel is typical. The main part of a camera may be equipped with the control unit according to various switches etc. other than the image pck-up lens section and the monitor section, and may be further equipped with the optical finder section. Although the electronic still camera which used CCD as an image pck-up element is mentioned as camera equipment, you may be a camera using other elements. Although a wrap box-like thing is mentioned in front reverse side both sides of for example, the main part of a camera, as long as a covering member is a wrap thing about the monitor section at least, the thing of what configuration is sufficient as it. moreover, covering -- even

if the slide direction of a member is a longitudinal direction, it may be lengthwise As long as a battery holder is located in the edge of an opposite side the main part side of a camera, the thing of what configuration and structure is sufficient as it.
[0007] as mentioned above, covering which according to invention according to claim 1 can slide and has a wrap portion for the monitor section -- since the main part side of a camera of a member is camera equipment which prepared the battery holder in the edge of an opposite side, at the time of carrying, the monitor section is covered by the covering member and can be protected and -- the time of the photography performed while change into the state where of opened the covering member horizontally to the main part of a camera, and the monitor section was exposed, it has a main part of a camera by one hand, it has a covering member by the hand of another side and the monitor section is looked at -- covering -- since a battery holder is in the edge of an opposite side, the weight balance of right and left on handling is stabilized, and it is hard to carry out a hand deflection to the main part side of a camera
[0008] Invention according to claim 2 is camera equipment according to claim 1, and the aforementioned covering member is characterized by the composition whose wrap portion also has the aforementioned image pck-up lens section.
[0009] Thus, according to invention according to claim 2, since a covering member according to claim 1 is camera equipment which also has the wrap portion, while the image pck-up lens section is covered by the covering member and it can protect the image pck-up lens section together with the monitor section at the time of carrying, it opens a covering member, exposes the image pck-up lens section together with the monitor section, and can take a photograph.
[0010] invention according to claim 3 -- camera equipment according to claim 1 or 2 -- it is -- the aforementioned covering -- it is characterized by the composition to which the switching action by slide operation of a member is interlocked with, and the on-off action of an electric power switch is carried out
[0011] thus -- according to invention according to claim 3 -- covering according to claim 1 or 2 -- if covering is opened, an electric power switch will be turned on, and a photograph can be taken and covering will be shut since it is camera equipment with which the switching action by slide operation of a member is interlocked with, and the on-off action of an electric power switch is performed, an electric power switch is turned off and can prevent a failure of a power supply to cut
[0012] Invention according to claim 4 is camera equipment according to claim 2 or 3, the aforementioned main part of a camera is equipped with the optical finder section, and the aforementioned covering member is characterized by the composition in which the wrap portion also has this optical finder section.
[0013] Thus, according to invention according to claim 4, since a covering member according to claim 2 or 3 is camera equipment which also has the wrap portion, while the optical finder section is covered by the covering member and it can protect the optical finder section together with the monitor section and the image pck-up lens section at the time of carrying, it opens a covering member, exposes the optical finder section together with the monitor section and the image pck-up lens section, and can take a photograph.
[0014] invention according to claim 5 -- camera equipment according to claim 4 -- it is -- the aforementioned covering -- it is characterized by the composition which has the half-aperture mode in which the aforementioned image pck-up lens section and the aforementioned optical finder section are exposed covering the aforementioned monitor section by slide operation of a member
[0015] thus -- according to invention according to claim 5 -- covering according to claim 4 -- since it is camera equipment which has the half-aperture mode in which the image pck-up lens section and the optical finder section are exposed covering the monitor section by slide operation of a member -- covering -- since the image pck-up lens section and the optical finder section are exposed, a photograph can be taken in the state of the half-aperture of a member and the monitor section is not used, power consumption can be saved
[0016]
[Embodiments of the Invention] Below, the example of a gestalt of operation of the camera equipment

concerning this invention is explained based on drawing 11 from drawing 1 . First, it is the front view, the plan, and rear view in which drawing 3's showing the camera equipment as an example which applied this invention from drawing 1 , and having shown the state where the covering member was closed, and drawing 4 and drawing 5 are the cross-sectional views and drawings of longitudinal section having shown internal outline composition. Moreover, drawing 6 is the front view having shown the busy condition which made the covering member the half-aperture state. And it is the rear view, the front view, and the plan having shown the busy condition to which drawing 9 made the covering member the full open state from drawing 7 , and drawing 10 and drawing 11 are the cross-sectional views and drawings of longitudinal section having shown internal outline composition.

[0017] drawing 11 from these drawing 1 -- setting -- 1 -- the main part of a camera, and 2 -- a covering member and 3 -- a shutter release and 4 -- for CCD and 7, the monitor section and 8 are [the image pck-up lens section and 5 / the optical finder section and 6 / a battery holder and B of a liquid crystal display panel and 9] cells box-like covering with which the camera equipment which applies this invention is an electronic still camera in the example of a gestalt of this operation, and only the unilateral section was wide opened like illustration by the main part 1 of a camera -- a member 2 -- a longitudinal direction -- a slide -- it attaches operational a shutter release 3 -- box-like covering -- it is prepared in the edge approach of an opposite side in the main part 1 of a camera in the upper surface section of a member 2, and as this shutter release 3 is adjoined, two or more operation buttons are prepared moreover, the image pck-up lens section 4 and its upper optical finder section 5 which turn to a transverse-plane side -- covering of the main part 1 of a camera -- the member 2 is formed in the edge approach of an opposite side

[0018] Like illustration, while various operation buttons are prepared, the store circuit and control circuit for digital-information-izing the photography picture and remembering it to be CCD (Charge Coupled Device : solid state image pickup device)6 which incorporates the picture from the image pck-up lens section 4 which are not illustrated are built in the main part 1 of a camera. Furthermore, the monitor section 7 for a photography picture and reproduction image display is formed in the tooth-back side of an opposite side in the image pck-up lens section 4 of the main part 1 of a camera. This monitor section 7 is constituted by the liquid crystal display panel 8, and is located next to [of the optical finder section 5] horizontal. and box-like covering -- the battery holder 9 is formed in the interior of a member 2 at the edge of an opposite side in the main part 1 of a camera, and two cells B and B are contained by this battery holder 9

[0019] by the way, covering -- the member 2 and the main part 1 of a camera are electrically connected through electric power supply meanses which are not illustrated, such as a flexible substrate and an electric conduction metal plate moreover, covering in as opposed to the main part 1 of a camera in the electric power switch which is not illustrated -- what is interlocked with the switching action of a member 2 -- becoming -- **** -- namely, the main part 1 of a camera -- receiving -- covering -- the state where the member 2 was closed -- OFF -- becoming -- moreover, covering -- it is set up so that it may be set to being turned on, where a member 2 is opened furthermore, covering -- the member 2 has the half-aperture mode once held in the half-aperture position in which the image pck-up lens section 4 and the optical finder section 5 are exposed, with the monitor section 7 other than a close-by-pass-bulb-completely state and a full open state closed at a lock state In addition, the power supply of the monitor section 7 (liquid crystal display panel 8) is maintained by the OFF state until it will be in a full open state exceeding half-aperture mode, and it is set up so that it may be in a full open state and may be set to being turned on.

[0020] Next, how to use the above electronic still camera is explained. at the time of carrying, it is shown in drawing 5 from drawing 1 -- as -- the main part 1 of a camera -- box-like covering -- a member 2 -- a close-by-pass-bulb-completely state -- becoming -- the image pck-up lens section 4, the optical finder section 5, the monitor section 7, and various operation buttons -- covering -- it will be in the state where it was covered by the member 2 Therefore, protection of the image pck-up lens section 4, the optical finder section 5, the monitor section 7, and various operation buttons can be aimed at at the time of carrying. moreover, covering on the time of carrying, and in as opposed to such a main part 1 of a

camera -- since the electric power switch serves as 0FF in the state of the close by-pass bulb completely of a member 2, there are no worries about the unprepared power supply ON at the time of un-using it in addition, this time -- covering -- the cells B and B contained to the battery holder 9 in a member 2 are in the approach state at the edge of the main part 1 of a camera, as shown in drawing 4 and drawing 5
[0021] on the occasion of photography, the arrow showed to drawing 2 -- as -- box-like covering -- the main part 1 of a camera is pulled out from a member 2 thus, covering -- it is once held in the half-aperture position which the image pck-up lens section 4 and the optical finder section 5 exposed, closing only the monitor section 7 as shown in drawing 6 when pulling out the main part 1 of a camera from a member 2 at a lock state, and becomes half-aperture mode In this half-aperture mode, since an electric power switch is set to being turned on, while peeping into the optical finder section 5 can be photoed. therefore, covering -- it can be used for photography also in the state where the main part of camera 1 whole is not pulled out from a member 2 In addition, in such half-aperture mode, since the power supply of the monitor section 7 (liquid crystal display panel 8) is turned off, the power consumption of the monitor section 7 (liquid crystal display panel 8) which is not used can be saved.
[0022] and pass the above half-aperture mode -- covering -- a member 2 to the main part 1 of a camera -- large -- pulling out -- the main part 1 of a camera -- receiving -- covering -- if a member 2 is made into a full open state, as shown in drawing 11 from drawing 7 , the image pck-up lens section 4, the optical finder section 5, the monitor section 7, and various operation buttons will be in an exposure state completely this time -- covering -- as the cells B and B contained to the battery holder 9 in a member 2 were shown in drawing 10 and drawing 11 , it is in the state where it separated greatly, from the edge of the main part 1 of a camera, and the power supply of the monitor section 7 (liquid crystal display panel 8) is set to being turned on in this way, a user -- a left hand -- the main part 1 of a camera -- having -- a right hand -- covering -- where it has a member 2, a shutter release 3 is pushed and photoed by ****, looking at the monitor section 7, as shown in drawing 8
[0023] the time of this photography -- covering -- since the battery holder 9 (cells B and B) in a member 2 is in the state where it separated from the edge of the main part 1 of a camera greatly -- a left hand -- the main part 1 of a camera -- having -- a right hand -- covering -- the weight balance of right and left on the handling performed where it has a member 2 is stabilized Therefore, it becomes what cannot carry out a hand deflection easily, and good photography can be performed.
[0024] by the way -- the example of a gestalt of operation -- a longitudinal direction -- covering of a slide formula -- covering made into the slide formula lengthwise although considered as the member 2 -- you may be a member thus, lengthwise -- covering of a slide formula -- in the case of a member, up-and-down weight balance is stabilized, and the effect of becoming what cannot carry out a hand deflection easily is acquired
[0025] In addition, in the example of a gestalt of the above operation, although considered as the electronic still camera, this invention may not be limited to this and, otherwise, may be a camera which combines the image recording function by digital conversion, and the image reconstruction function by the monitor with an analog camera. Moreover, of course, it can change suitably also about a concrete constructional detail arbitrarily [concrete structure a concrete design, etc. of each part].
[0026]
[Effect of the Invention] as mentioned above, covering which according to the camera equipment concerning invention according to claim 1 can slide and has a wrap portion for the monitor section -- with the main part side of a camera of a member, since the battery holder was prepared in the edge of an opposite side At the time of carrying, the monitor section can be covered by the covering member and can be protected. and in the case of the photography performed while it has a main part of a camera by one hand, it has the covering member made to slide horizontally by the hand of another side and the monitor section is looked at covering -- since a battery holder is in the edge of an opposite side, the weight balance of right and left on handling shall be stabilized, and shall not carry out a hand deflection to the main part side of a camera of a member easily
[0027] Since the wrap portion also has the image pck-up lens section, while a covering member can protect [according to the camera equipment concerning invention according to claim 2] the monitor

section and the image pck-up lens section at the time of carrying in addition to the effect acquired by invention according to claim 1, the advantage that the monitor section and the image pck-up lens section can be exposed, and a photograph can be taken is acquired.
[0028] according to the camera equipment concerning invention according to claim 3 -- covering -- if covering is opened in addition to the effect acquired by invention according to claim 1 or 2 in order that the switching action of a member may be interlocked with and an electric power switch may carry out an on-off action, an electric power switch will be turned on, and a photograph can be taken and covering will be shut, the advantage that an electric power switch can be turned off and a failure of a power supply to cut can be prevented will be acquired
[0029] Since the wrap portion also has the optical finder section, while a covering member can protect [according to the camera equipment concerning invention according to claim 4] the monitor section, the image pck-up lens section, and the optical finder section at the time of carrying in addition to the effect acquired by invention according to claim 2 or 3, the advantage that the monitor section, the image pck-up lens section, and the optical finder section can expose, and a photograph can take is acquired.
[0030] according to the camera equipment concerning invention according to claim 5 -- covering, since it has the half-aperture mode in which the image pck-up lens section and the optical finder section are exposed covering the monitor section by slide operation of a member the effect acquired by invention according to claim 4 -- in addition, covering -- since the image pck-up lens section and the optical finder section can be exposed, a photograph can be taken in the state of the half-aperture of a member and the monitor section is not used, the advantage that power consumption can be saved is acquired

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[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] this invention relates to the camera with the barrier of a slide formula.
[0002]
[Description of the Prior Art] Conventionally, a barrier positioning means by which it is used by invention currently indicated by JP,6-102570,A as a barrier positioning means of a camera to have the slide formula barrier is proposed.
[0003] The aforementioned barrier positioning means is shown in drawing 13 and drawing 14 , and drawing 15 .
[0004] In drawing 13 and drawing 14 , and drawing 15 , cylinder convex boss section 3b is installed in left-hand side by the frame front cover 3 toward the near position and camera of a lens barrel 1. Click spring 4b and click ball 5b are built in boss section 3b, and click ball 5b is energized forward by click spring 4b.
[0005] Drawing 13 shows the state where the barrier 2 is in a closed position 2 (A). Click ball 5b is forced on 2f of barrier crevices for making effective the click by the closed position 2 (A) by click spring 4b in this state. Drawing 14 shows the state where the barrier 2 is in an open position 2 (B). Click ball 5b is forced on 2d of barrier crevices for making effective the click by the open position 2 (B) by click spring 4b in this state. Drawing 15 shows the state where the barrier 2 is in the position (move position 2 (C)) between a closed position 2 (A) and an open position 2 (B). Click ball 5b is forced on flat side 2e of the barrier 2 by click spring 4b in this state.
[0006]
[Problem(s) to be Solved by the Invention] However, the technical means proposed by above-mentioned JP,6-102570,A opens the barrier 2 by sufficient force for pushing of click ball 5b from a closed position 2 (A) (or open position 2 (B)), and if it goes (shutting), click ball 5b will slide on 2f (2d) of barrier crevices in contact with ejection and flat side 2e. Under the present circumstances, since click spring 4b is deforming in the shrunken direction, the ability forced on field 2e of click ball 5b will become large, and the movement of the barrier 2 at the time of a barrier slide will become heavy.
[0007] this invention is made in order to solve above-mentioned fault, and it aims at the movement of the barrier at the time of a barrier slide offering the camera with the barrier of a light slide formula in the camera with the barrier of a slide formula.
[0008]
[Means for Solving the Problem and its Function] The camera with the barrier of the slide formula of this invention has a taking lens, and slides it in the direction which intersects the optical axis of a taking lens. In the camera with the barrier of the slide formula equipped with the barrier which can slide the transverse plane of a taking lens to a wrap closed position and the open position which is not wearing the transverse plane of this taking lens It is characterized by making it mitigate by making into a concave surface the field where the positioning means of a closed position and an open position contacts the force at the time of making this barrier slide between a closed position and an open position.

[0009]
[Example] Hereafter, the example of this invention is explained based on drawing.
[0010] Drawing 1 shows the state where the barrier 2 was made full open with the perspective diagram of the camera with the barrier of the slide formula of the 1st example of this example. Let the position of the barrier 2 in this state be an open position 2 (B). Drawing 2 is a perspective diagram in the state where the above-mentioned barrier 2 was closed completely, and makes the position of the barrier 2 in this state a closed position 2 (A). Drawing 3 is a perspective diagram in the state where the barrier 2 in the state of above-mentioned drawing 2 was removed. In addition, there is barrier 2 along the same slot (un-illustrating) of barrier rail slot 3a of the frame front cover 3 of the camera body, and the bottom, and the slide of between the closed position 2 of drawing 2 (A) and the open position 2 of drawing 1 (B) of it is attained.
[0011] As shown in drawing 3 , it is the near position of a taking lens 6, and cylinder convex boss section 3b is installed in left-hand side by the frame front cover 3 toward the camera. In boss section 3b, click spring 4b and click ball 5b which are an energization means are built, and click ball 5b is energized forward by click spring 4b.
[0012] Drawing 4 is a cross-sectional view in the field which passes along boss section 3b in the close-by-pass-bulb-completely state of the barrier 2. Click ball 5b is forced on 2f of barrier crevices for making effective the click by the closed position 2 (A) by click spring 4b in this state. Drawing 5 is a cross-sectional view in the field which passes along boss section 3b in the full open state of the barrier 2. Click ball 5b is forced on 2d of barrier crevices for making effective the click by the open position 2 (B) by click spring 4b in this state. Drawing 6 is a cross-sectional view in the field which passes along boss section 3b in the move state of the barrier 2. In addition, the move state of the above-mentioned barrier 2 means the state where the barrier 2 is moving between the close-by-pass-bulb-completely state of the barrier 2, and full open states. Moreover, let the position of the barrier 2 be the move position 2 (C). It is 2g of concave surfaces which click ball 5b contacts at this time. In addition, dashed line screen 2e is a virtual side to which the upper limit which constitutes the crevices 2d and 2f on the barrier is connected.
[0013] Now, if the closed position 2 of drawing 4 (A) to move position 2(C) (** slides the barrier 2 to the move position 2 (C)) from the open position 2 of drawing 5 (B), in the move position 2 (C), click ball 5b will contact 2g of concave surfaces. The amount of shrinkages of click spring 4b becomes small by making the contacting field into 2g of concave surfaces compared with the case where the contacting field is flat virtual side 2e, and the ability which contacts the barrier 2 of click ball 5b becomes small. Therefore, the force which making the barrier 2 in the state where the barrier 2 is located in the move position 2 (C) slide takes is also small, and ends. That is, it becomes possible to make the barrier slide in light operation. In addition, since the pars basilaris ossis occipitalis of 2g of concave surfaces is carrying out to to the depth to which click ball 5b does not fall out from boss section 3b, and click spring 4b can always energize click ball 5b to the barrier 2, shakiness of the barrier 2 is also suppressed.
[0014] Next, the 2nd example of this invention is explained based on drawing.
[0015] Although it installed in the frame front cover 3 in the thing of the 1st example of the above so that click ball 5b might be energized forward, the thing of this example is installed in a frame front cover 3 so that click ball 5c may be energized upward.
[0016] Drawing 7 is the perspective diagram of the camera with the barrier of the slide formula of this example, and shows the state where the barrier was removed. It is the near position of a taking lens 6, and heights 3c is installed in left-hand side toward the camera by the frame front cover 3. In heights 3c, click spring 4c and click ball 5c are built, and click ball 5c is energized upward to it. Moreover, click rail 2k which click ball 5c contacts is prepared in the rear face of the barrier 2, and crevice 2j which performs positioning when the barrier 2 changes into a close-by-pass-bulb-completely state, crevice 2i which performs positioning when the barrier 2 changes into a full open state, and 2h of concave surfaces are prepared in this click rail 2k (refer to drawing 8).
[0017] Drawing 8 is the barrier section perspective drawing seen from the camera transverse plane in the full open state of the barrier 2. Click ball 5c is forced on barrier crevice 2i for making effective the click by the open position 2 (B) by click spring 4c in this state. Drawing 9 is the barrier section perspective

drawing seen from the camera transverse plane in the close-by-pass-bulb-completely state of the barrier 2. Click ball 5c is forced on barrier crevice 2j for making effective the click by the closed position 2 (A) by click spring 4c in this state. Drawing 10 is the barrier section perspective drawing seen from the camera transverse plane in the move state of the barrier 2. In addition, the move state of the above-mentioned barrier 2 means the state where the barrier 2 is located in the middle of the close-by-pass-bulb-completely state of the barrier 2, and a full open state. Moreover, let the position of the barrier be the move position 2 (C). Click ball 5c is forced on 2h of concave surfaces of the barrier by click spring 4c in this state.

[0018] Now, if the closed position 2 of drawing 9 (A) to move position 2(C) (** slides the barrier 2 to the move position 2 (C)) from the open position 2 of drawing 8 (B), in the move position 2 (C), click ball 5b will contact 2h of concave surfaces. The amount of shrinkages of click spring 4c becomes small by making the contacting field into 2h of concave surfaces like the 1st example, and the ability which contacts click rail 2k of click ball 5c becomes small. Therefore, the force required for making it slide the barrier 2 in the state where the barrier 2 is located in the move position 2 (C) is also small, and ends. That is, it becomes possible to make the barrier slide in light operation. In addition, since the pars basilaris ossis occipitalis of 2h of concave surfaces is carrying out to to the depth to which click ball 5c falls out from heights 3c, and ** and click spring 4c can always energize click ball 5c to the barrier 2, shakiness of the barrier 2 is also pressed down. Next, the 3rd example of this invention is explained based on drawing.

[0019] this example constitutes the energization means in the camera of the 1st example of the above only from ITABANE 4d in a change of click ball 5b and click spring 4b.

[0020] Drawing 11 is the perspective diagram of the camera with a barrier of the slide formula of **** 3 example, and shows the state where the barrier was removed. It is the near position of a taking lens 6, and ITABANE 4d is installed in left-hand side with the screw 7 toward the camera by the frame front cover 3. When the notch 9 is formed in ITABANE4d and ITABANE 4d is pushed back, 3d of pillar-like heights is met and ITABANE 4d escapes. In addition, the operation of **** 3 example is the same as that of the thing of the 1st example of the above.

[0021] Next, the 4th example of this invention is explained based on drawing.

[0022] this example constitutes the energization means in the camera of the 2nd example of the above only from ITABANE 4e in a change of click ball 5c and click spring 4c.

[0023] Drawing 12 is the perspective diagram of the camera with the barrier of the slide formula of **** 4 example, and shows the state where the barrier was removed. It is the near position of a taking lens 6, and heights 3e is installed in left-hand side toward the camera by the frame front cover 3. ITABANE 4e is installed in these heights 3e with the screw 7. When the notch 9 is formed in ITABANE4e and ITABANE 4e is pushed caudad, the pillar-like pin 8 is met and ITABANE 4e escapes.

[0024] The operation of **** 4 example is the same as that of the thing of the 2nd example of the above.

[0025] According to the embodiment of the **** this invention explained in full detail more than the [additional remark], the composition like a less or equal can be obtained. Namely, it sets to the camera equipped with the barrier which can move in the direction which intersects the optical axis of a taking lens at a wrap closed position and the open position which is not wearing the transverse plane of this taking lens at the front of (1) taking lens. So that it may engage with the above-mentioned energization means in an energization means to always energize the above-mentioned barrier, and the above-mentioned closed position and an open position The camera with the barrier possessing a mitigation means to mitigate the barrier dynamic resistance ability produced by the above-mentioned energization means at the time of movement between the engagement section prepared in the above-mentioned barrier, and the above-mentioned closed position and an open position.

[0026] (2) In the camera equipped with the barrier which can move the front face of a taking lens to a wrap closed position and the open position which opens the front face of this taking lens The elastic member energized so that it may engage with the above-mentioned barrier and a click may be given, and the energization means which consists of the click sphere energized by this elastic member, With the

engagement section in which the click concave section for positioning the above-mentioned barrier in the above-mentioned closed position and an open position was formed, it sets further at the time of movement between the above-mentioned closed position and an open position. The camera with the barrier which possesses the mitigation means prepared in the above-mentioned barrier which made the sliding surface to the aforementioned energization means after the above-mentioned click concave section riding past the roll-off configuration so that the above-mentioned click sphere may overshoot its above-mentioned click concave section and energization ability may be mitigated from the time.
[0027] (3) The above-mentioned energization means is a camera with the barrier given in the above (1) which consists of only elastic members.
[0028]
[Effect of the Invention] As explained above, the camera with the barrier of the slide formula of this invention has the effect which makes light operation to which the barrier is made to slide by providing the crevice which makes the ability concerning the field where a positioning means to position the barrier contacts mitigate at the time of a barrier slide.

[Translation done.]

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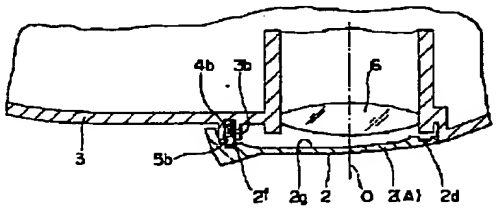
(54) CAMERA WITH BARRIER

(57) Abstract:

PURPOSE: To provide a camera with slide barrier capable of smooth moving at the time of sliding.

CONSTITUTION: The camera provided with the barrier 2 capable of being moved to a fully closing position for covering the front surface of a photographic lens 6 and a fully opening position for opening the front surface of the photographic lens has a click ball 5b having energizing force in a direction where the ball 5b comes into elastically contact with the barrier 2, barrier recessed parts 2f and 3d provided on the barrier 2 so as to be engaged with the ball 5b in the fully closing and opening positions and a recessed face 2g provided on the barrier 2 between both barrier recessed parts 2f and 2d to eliminate the energizing force in the moving range between the fully closing and opening positions.



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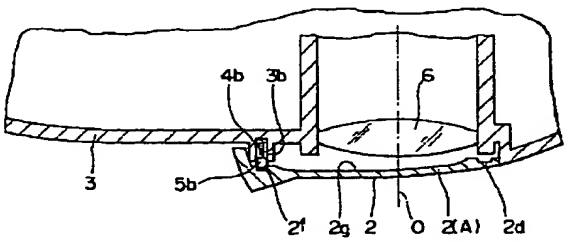
(54)【発明の名称】　バリア付きカメラ

(57)【要約】

【目的】スライド式のバリア付きカメラにおいて、バリアスライド時のバリアの動きが軽いスライド式のバリア付きカメラを提供することを目的とする。

【構成】撮影レンズ６の前面を覆う全閉位置と、該撮影レンズの前面を開放する全開位置とに、移動可能なバリア２を備えたカメラにおいて、上記バリア２に弾接する向きの付勢力を与えられたクリックボール５ｂと、上記全閉位置および全開位置にて上記クリックボール５ｂと係合するよう、上記バリア２に設けられたバリア凹部２ｆ，２ｄと、上記全閉位置と全開位置との間の移動範囲においては上記付勢力を消勢するよう、上記両バリア凹部２ｆ，２ｄの間にて上記バリア２に設けられた凹面２ｇとを具備することを特徴とする。



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【特許請求の範囲】

【請求項１】　撮影レンズの前面を覆う全閉位置と、該撮影レンズの前面を開放する全開位置とに、移動可能なバリアを備えたカメラにおいて、

上記バリアに弾接する向きの付勢力を与えられた係止手段と、

上記全閉位置および全開位置にて上記係止手段と係合するよう、上記バリアに設けられた係合部と、

上記全閉位置と全開位置との間の移動範囲においては上記付勢力を消勢するよう、上記両係合部の間にて上記バリアに設けられた消勢部と、

を具備することを特徴とするバリア付きカメラ。

【請求項２】　上記係止手段は、球状部材と、この球状部材を上記バリアに向けて押圧する弾性部材とで構成されていることを特徴とする請求項１に記載のバリア付きカメラ。

【請求項３】　撮影レンズの正面を覆う全閉位置と、該撮影レンズの正面を覆うことのない全開位置とに、撮影レンズの光軸と交差する方向に移動可能なバリアを備えたカメラにおいて、

上記全閉位置および全開位置にて上記バリアの位置決めを行うためのクリック手段と、

このクリック手段による圧力を軽減させるよう上記全閉位置と全開位置との間の移動範囲中に設けられた圧力軽減手段と、

を具備することを特徴とするバリア付きカメラ。

【発明の詳細な説明】

【０００１】

【産業上の利用分野】本発明は、スライド式のバリア付きカメラに関する。

【０００２】

【従来の技術】従来、スライド式バリアを有するカメラのバリア位置決め手段として、特開平６－１０２５７０号公報に開示されている発明で用いられているようなバリア位置決め手段が提案されている。

【０００３】前記のバリア位置決め手段を図１３および図１４，図１５に示す。

【０００４】図１３および図１４，図１５において、前カバー３には、レンズ鏡筒１の近傍位置かつ、カメラに向かって左側に円筒凸状のボス部３ｂが設置されている。ボス部３ｂにはクリックバネ４ｂとクリックボール５ｂが内蔵され、クリックバネ４ｂによりクリックボール５ｂは前方向に付勢されている。

【０００５】図１３はバリア２が全閉位置２（Ａ）にある状態を示す。この状態では、全閉位置２（Ａ）でのクリックを効かせるためのバリア凹部２ｆに、クリックボール５ｂがクリックバネ４ｂにより押し付けられている。図１４はバリア２が全開位置２（Ｂ）にある状態を示す。この状態では、全開位置２（Ｂ）でのクリックを効かせるためのバリア凹部２ｄに、クリックボール５ｂ

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がクリックバネ４ｂにより押し付けられている。図１５はバリア２が全閉位置２（Ａ）と全開位置２（Ｂ）の間の位置（移動位置２（Ｃ））にある状態を示す。この状態では、バリア２の平らな面２ｅに、クリックボール５ｂがクリックバネ４ｂにより押し付けられている。

【０００６】

【発明が解決しようとする課題】ところが、上述の特開平６－１０２５７０号公報で提案された技術手段は、全閉位置２（Ａ）（もしくは、全開位置２（Ｂ））からクリックボール５ｂの押し込みに充分な力でバリア２を開けて（閉めて）いくと、クリックボール５ｂはバリア凹部２ｆ（２ｄ）を抜け出し、平らな面２ｅに当接して摺動する。この際、クリックバネ４ｂは縮む方向に変形しているため、クリックボール５ｂの面２ｅに押しつけられる力量は大きくなり、バリアスライド時のバリア２の動きが重くなってしまう。

【０００７】本発明は、上述の不具合を解決するためになされたものであり、スライド式のバリア付きカメラにおいて、バリアスライド時のバリアの動きが軽いスライド式のバリア付きカメラを提供することを目的とする。

【０００８】

【課題を解決するための手段および作用】本発明のスライド式のバリア付きカメラは、撮影レンズを有し、撮影レンズの光軸と交差する方向にスライドし、撮影レンズの正面を覆う全閉位置と該撮影レンズの正面を覆うことのない全開位置とにスライド可能であるバリアを備えたスライド式のバリア付きカメラにおいて、該バリアを全閉位置と全開位置の間でスライドさせる際の力を、全閉位置と全開位置の位置決め手段が当接する面を凹面とすることによって軽減させることを特徴とする。

【０００９】

【実施例】以下、本発明の実施例を図に基づいて説明する。

【００１０】図１は本実施例の第１実施例のスライド式のバリア付きカメラの斜視図でバリア２を全開にした状態を示す。この状態でのバリア２の位置を全開位置２（Ｂ）とする。図２は、上記バリア２が完全に閉まった状態の斜視図であってこの状態でのバリア２の位置を全閉位置２（Ａ）とする。図３は、上記図２の状態におけるバリア２を取り外した状態の斜視図である。なお、バリア２は、カメラボディの前カバー３のバリアレール溝３ａと下側の同様の溝（不図示）にそって、図２の全閉位置２（Ａ）と図１の全開位置２（Ｂ）の間をスライド可能になっている。

【００１１】図３に示すように、前カバー３には、撮影レンズ６の近傍位置であって、カメラに向かって左側に円筒凸状のボス部３ｂが設置されている。ボス部３ｂには、付勢手段であるクリックバネ４ｂとクリックボール５ｂが内蔵され、クリックバネ４ｂによりクリックボール５ｂは前方向に付勢されている。

【００１２】図４は、バリア２の全閉状態でのボス部３ｂを通る面での横断面図である。この状態では、全閉位置２（Ａ）でのクリックを効かせるためのバリア凹部２ｆに、クリックボール５ｂがクリックバネ４ｂにより押し付けられている。図５は、バリア２の全開状態でのボス部３ｂを通る面での横断面図である。この状態では、全開位置２（Ｂ）でのクリックを効かせるためのバリア凹部２ｄに、クリックボール５ｂがクリックバネ４ｂにより押し付けられている。図６は、バリア２の移動状態での、ボス部３ｂを通る面での横断面図である。なお、上記バリア２の移動状態とは、バリア２の全閉状態と全開状態の間をバリア２が移動している状態を言う。また、そのバリア２の位置を移動位置２（Ｃ）とする。このときクリックボール５ｂが当接するのが凹面２ｇである。なお、破線表示面２ｅはバリア上の凹部２ｄ、２ｆを構成している上端を結ぶ仮想面である。

【００１３】さて、バリア２を図４の全閉位置２（Ａ）から移動位置２（Ｃ）（又は、図５の全開位置２（Ｂ）から移動位置２（Ｃ））にスライドしていくと、移動位置２（Ｃ）においてクリックボール５ｂが凹面２ｇに当接する。当接する面が平らな仮想面２ｅの場合に比べ、当接する面を凹面２ｇにすることでクリックバネ４ｂの縮み量が小さくなりクリックボール５ｂのバリア２に当接する力量が小さくなる。よって、バリア２が移動位置２（Ｃ）に位置する状態でのバリア２をスライドさせるのに要する力も小さくてすむ。すなわち、軽い動作でバリアをスライドさせることが可能となる。なお、凹面２ｇの底部は、クリックボール５ｂがボス部３ｂから抜け落ちず、かつクリックバネ４ｂがクリックボール５ｂをバリア２に常に付勢できる深さまでとしているので、バリア２のがたつきも抑えられる。

【００１４】次に、本発明の第２実施例を図を基に説明する。

【００１５】前記第１実施例のものでは、クリックボール５ｂを前方向に付勢するように前カバー３に設置したが、本実施例のものは、クリックボール５ｃを上方向に付勢するよう前カバー３に設置したものである。

【００１６】図７は、本実施例のスライド式のバリア付きカメラの斜視図で、バリアを取り外した状態を示す。前カバー３には、撮影レンズ６の近傍位置であって、カメラに向かって左側に凸部３ｃが設置されている。凸部３ｃには、クリックバネ４ｃとクリックボール５ｃが内蔵され、クリックボール５ｃを上方向に付勢している。また、バリア２の裏面には、クリックボール５ｃが当接するクリックレール２ｋが設けてあり、該クリックレール２ｋには、バリア２が全閉状態となった時の位置決めを行う凹部２ｊと、バリア２が全開状態となった時の位置決めを行う凹部２ｉと、凹面２ｈが設けてある（図８参照）。

【００１７】図８は、バリア２の全開状態でのカメラ正面から見たバリア部透視図である。この状態では、全開位置２（Ｂ）でのクリックを効かせるためのバリア凹部２ｉに、クリックボール５ｃがクリックバネ４ｃにより押し付けられている。図９は、バリア２の全閉状態でのカメラ正面から見たバリア部透視図である。この状態では、全閉位置２（Ａ）でのクリックを効かせるためのバリア凹部２ｊに、クリックボール５ｃがクリックバネ４ｃにより押し付けられている。図１０は、バリア２の移動状態でのカメラ正面から見たバリア部透視図である。なお、上記バリア２の移動状態とは、バリア２の全閉状態と全開状態の中間にバリア２が位置する状態を言う。また、そのバリアの位置を移動位置２（Ｃ）とする。この状態では、バリアの凹面２ｈに、クリックボール５ｃがクリックバネ４ｃにより押し付けられている。

【００１８】さて、バリア２を図９の全閉位置２（Ａ）から移動位置２（Ｃ）（又は、図８の全開位置２（Ｂ）から移動位置２（Ｃ））にスライドしていくと、移動位置２（Ｃ）においてクリックボール５ｂが凹面２ｈに当接する。第１実施例と同様に、当接する面を凹面２ｈにすることでクリックバネ４ｃの縮み量が小さくなり、クリックボール５ｃのクリックレール２ｋに当接する力量が小さくなる。よって、バリア２が移動位置２（Ｃ）に位置する状態でのバリア２をスライドさせるに要する力も小さくてすむ。すなわち、軽い動作でバリアをスライドさせることが可能となる。なお、凹面２ｈの底部は、クリックボール５ｃが凸部３ｃから抜け落ちづ、かつクリックバネ４ｃがクリックボール５ｃをバリア２に常に付勢できる深さまでとしているので、バリア２のがたつきもおさえられる。次に、本発明の第３実施例を図を基に説明する。

【００１９】本実施例は、前記第１実施例のカメラにおける付勢手段をクリックボール５ｂとクリックバネ４ｂの変わりにイタバネ４ｄのみで構成したものである。

【００２０】図１１は、本第３実施例のスライド式のバリア付きカメラの斜視図で、バリアを取り外した状態を示す。前カバー３には、撮影レンズ６の近傍位置であって、カメラに向かって左側にイタバネ４ｄがネジ７によって設置されている。イタバネ４ｄには切欠き部９が設けてあり、イタバネ４ｄが後方に押された際、円柱状凸部３ｄにそってイタバネ４ｄが逃げるようになっている。なお、本第３実施例の作用は上記第１実施例のものと同様である。

【００２１】次に、本発明の第４実施例を図を基に説明する。

【００２２】本実施例は、前記第２実施例のカメラにおける付勢手段をクリックボール５ｃとクリックバネ４ｃの変わりにイタバネ４ｅのみで構成したものである。

【００２３】図１２は、本第４実施例のスライド式のバリア付きカメラの斜視図で、バリアを取り外した状態を示す。前カバー３には、撮影レンズ６の近傍位置であっ

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て、カメラに向かって左側に凸部３ｅが設置されている。該凸部３ｅには、イタバネ４ｅがネジ７によって設置されている。イタバネ４ｅには切欠き部９が設けてあり、イタバネ４ｅが下方に押された際、円柱状のピン８にそってイタバネ４ｅが逃げるようになっている。

【００２４】本第４実施例の作用は、上記第２実施例のものと同様である。

【００２５】[付記]以上詳述した如き本発明の実施態様によれば、以下の如き構成を得ることができる。即ち、

（１）撮影レンズの正面を覆う全閉位置と、該撮影レンズの正面を覆うことのない全開位置とに、撮影レンズの光軸と交差する方向に移動可能なバリアを備えたカメラにおいて、上記バリアを常に付勢する付勢手段と、上記全閉位置および全開位置にて上記付勢手段と係合するよう、上記バリアに設けられた係合部と、上記全閉位置と全開位置との間の移動時においては上記付勢手段により生ずるバリア摺動抵抗力量を軽減する軽減手段と、を具備するバリア付きカメラ。

【００２６】（２）撮影レンズの前面を覆う全閉位置と、該撮影レンズの前面を開放する全開位置とに、移動可能なバリアを備えたカメラにおいて、上記バリアと係合しクリックを与えるよう付勢する弾性部材と、この弾性部材により付勢されたクリック球より成る付勢手段と、上記全閉位置および全開位置にて上記バリアの位置決めを行うためのクリック凹溝部が形成された係合部と、さらに、上記全閉位置と全開位置との間の移動時においては、上記クリック凹溝部を上記クリック球が乗り越し時より付勢力量を軽減するよう、上記クリック凹溝部乗り越し後の前記付勢手段に対する摺動面を逃げ部形状とした、上記バリアに設けられた軽減手段と、を具備するバリア付きカメラ。

【００２７】（３）上記付勢手段は、弾性部材のみで構成されている、上記（１）に記載のバリア付きカメラ。

【００２８】

【発明の効果】以上説明したように、本発明のスライド式のバリア付きカメラは、バリアスライド時、バリアの位置決めを行う位置決め手段の当接する面にかかる力量を軽減させる凹部を具備することによって、バリアをスライドさせる動作を軽くする効果を有する。

【図面の簡単な説明】

【図１】本発明の第１実施例を示すスライド式のバリア付きカメラのバリア全開状態における斜視図。

【図２】図１のカメラのバリア全閉状態における斜視図。

【図３】図１のカメラのバリアを取り外した状態での斜視図。

【図４】本発明の第１実施例を示すスライド式のバリア付きカメラのバリア全閉状態におけるボス部３ｂを通る面での横断面図。

【図５】図４のカメラのバリア全開状態におけるボス部

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３ｂを通る面での横断面図。

【図６】図４のカメラのバリア移動状態におけるボス部３ｂを通る面での横断面図。

【図７】本発明の第２実施例を示すスライド式のバリア付きカメラのバリアを取り外した状態における斜視図。

【図８】図７のカメラを正面から見たバリア全開状態におけるバリア部透視図。

【図９】図７のカメラを正面から見たバリア全閉状態におけるバリア部透視図。

【図１０】図７のカメラを正面から見たバリア移動状態におけるバリア部透視図。

【図１１】本発明の第３実施例を示すスライド式のバリア付きカメラのバリアを取り外した状態における斜視図。

【図１２】本発明の第４実施例を示すスライド式のバリア付きカメラのバリアを取り外した状態における斜視図。

【図１３】従来技術を示すスライド式のバリア付きカメラのバリア全開状態におけるボス部３ｂを通る面での横断面図。

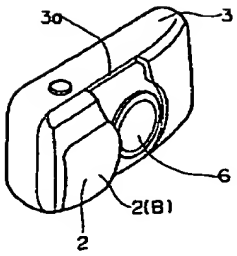
【図１４】図１３のカメラのバリア全開状態におけるボス部３ｂを通る面での横断面図。

【図１５】図１３のカメラのバリア移動状態におけるボス部３ｂを通る面での横断面図。

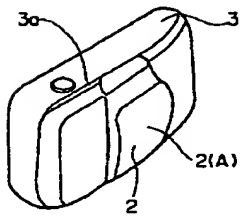
【符号の説明】

１	・・・・・・・・・・レンズ鏡筒
１（Ａ）	・・・・・・・・・・レンズ鏡筒の沈胴位置
１（Ｂ）	・・・・・・・・・・レンズ鏡筒の突出位置
２	・・・・・・・・・・バリア
２（Ａ）	・・・・・・・・・・バリア閉位置
２（Ｂ）	・・・・・・・・・・バリア開位置
２（Ｃ）	・・・・・・・・・・バリア移動位置
２ｄ、２ｆ、２ｉ、２ｊ	・・・・・・・・・・バリア凹部
２ｅ	・・・・・・・・・・面
２ｇ、２ｈ	・・・・・・・・・・凹面
２ｋ	・・・・・・・・・・クリックレール
３	・・・・・・・・・・前カバー
３ａ	・・・・・・・・・・バリアレール溝
３ｂ	・・・・・・・・・・ボス部
３ｃ、３ｅ	・・・・・・・・・・凸部
３ｄ	・・・・・・・・・・円柱凸部
４ｂ、４ｃ	・・・・・・・・・・クリックバネ
４ｄ、４ｅ	・・・・・・・・・・イタバネ
５ｂ、５ｃ	・・・・・・・・・・クリックボール
６	・・・・・・・・・・撮影レンズ
７	・・・・・・・・・・ネジ
８	・・・・・・・・・・ピン
９	・・・・・・・・・・切欠部
Ｏ	・・・・・・・・・・撮影レンズ光軸

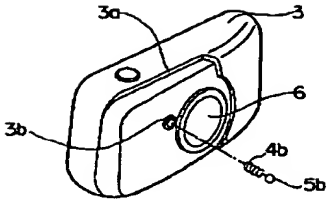
【図1】



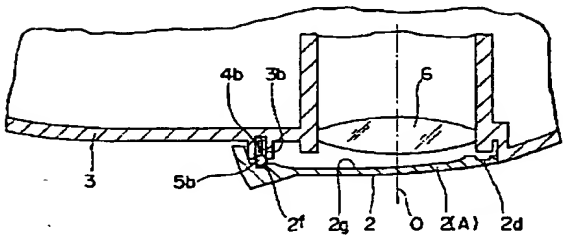
【図2】



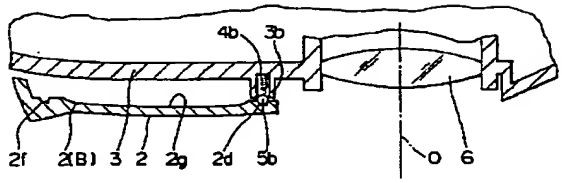
【図3】



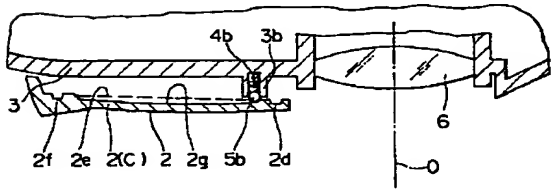
【図4】



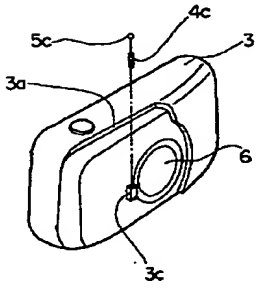
【図5】



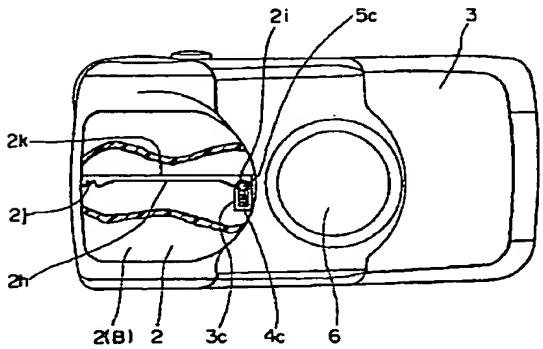
【図6】



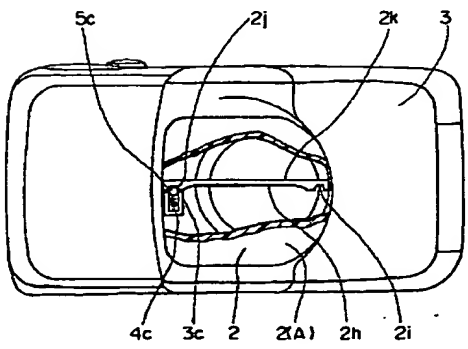
【図7】



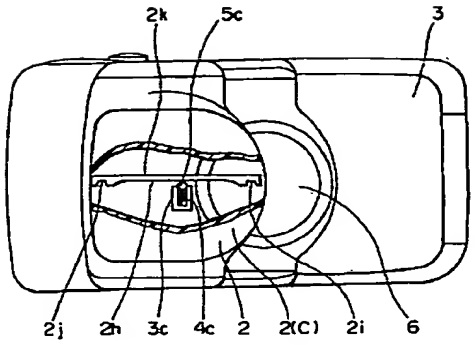
【図8】



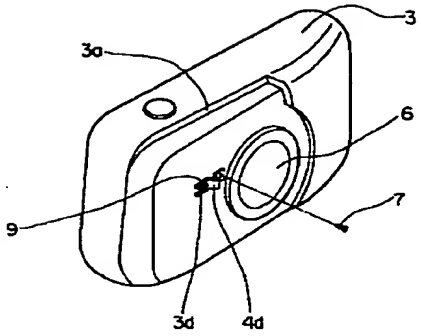
【図9】



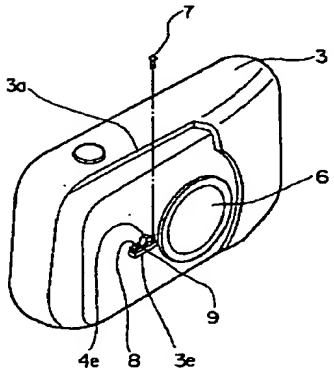
【図１０】



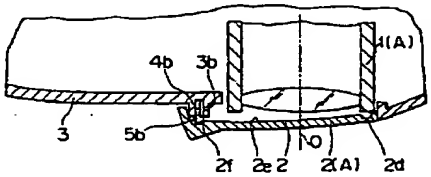
【図１１】



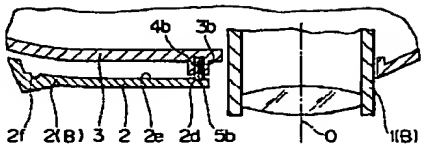
【図１２】



【図１３】



【図１４】



【図１５】